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October 22, 1996

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Federal Communications Commission
Office of Secretary

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

RE: ET Docket No. 96-102 EX PARTE PRESENTATION

Dear Mr. Caton:

On October 22, 1996, David Weinreich and the undersigned, representing L/Q Licensee, Inc. (LQL), met with Bruce Franca, Michael Marcus, Charles Iseman, Fred Thomas, Tom Derenge, and Bruno Pattan of the Office of Engineering and Technology and Harry Ng and Karl Kensinger of the International Bureau and made a presentation based on the enclosed materials and LQL's Comments and Reply Comments in this proceeding.

Two copies of this letter are being submitted for inclusion in the file referenced above.

Respectfully submitted,

William D. Wallace

Enclosure
cc: Bruce Franca
Michael Marcus
Charles Iseman
Fred Thomas
Tom Derenge
Bruno Pattan
Harry Ng
Karl Kensinger

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L/Q LICENSEE, INC.

Amendment of the Commission's Rules to Provide For Unlicensed NII/SUPERNet Operations in the 5 GHz Frequency Range

(ET Docket No. 96-102)

October 22, 1996

I. Globalstar Plans to Provide Service to Markets in the United States and Internationally Using 5 GHz Feeder Links.

- Globalstar™ user links were licensed in January 1995.

- WRC-95 adopted international allocation for use of 5091-5250 MHz band for NGSO MSS feeder links.

- Globalstar satellites are under construction; launches are scheduled to commence in second half 1997. Service with partial constellation is expected to commence in 1998; full commercial service is anticipated to commence January 1, 1999.

II. The NII/SUPERNet Proposal Is Not Sufficiently Developed.

Apple and WINForum have not provided information essential to gauge the potential success of this proposal and the sharing environment. Additional information should have been provided on:

- the feasibility of unlicensed devices operating in the proposed spectrum and sharing with MSS.
- sales or marketing projections to determine potential demand.
- the configuration of NII/SUPERNet networks to enable a more accurate study of potential for harmful interference into MSS feeder links.
- an explanation of how networking of off-the-shelf, unlicensed devices would avoid intraservice interference (i.e., how many devices could be on at any given time).
- an explanation how Apple's low power "VHR" devices operating in the 5150-5250 MHz band would be precluded from operating at the higher power proposed for community network operations in the remaining frequencies.
- results of tests on building attenuation for NII/SUPERNet devices.

III. Apple and WINForum Have Not Demonstrated That Sharing Between NII/SUPERNet Devices and MSS Feeder Links Is Feasible.

A. No party disputes that there is a potential for interference into spacecraft receivers. The only issue is how significant the impact is.

B. The satellite industry has demonstrated that the potential for harmful interference is significant:

- L/Q Licensee demonstrated that it would require only 1070 simultaneous active devices in the United States to raise the noise floor at the spacecraft by 0.1%.
- AirTouch (Globalstar™ service provider in United States) estimates that substantial deployment of NII/SUPERNet devices would result in interference that would reduce the capacity of the Globalstar™ system in the United States by over 27.4%, a significant degradation in service.
- ICO and Comsat demonstrated that deployment of 50 million NII/SUPERNet devices would result in significant satellite power robbing, even assuming a very small outdoor population.

- Even if the level of "permissible" interference is extended, LQL's analysis indicates that the 5150-5250 MHz band is not an appropriate choice for widespread deployment of NII/SUPERNet devices.

ΔT/T	**Number of Simultaneous Active NII/SUPERNet Devices in North America Necessary to Raise Noise Floor**	
0.1%	1,070	Outdoor
1.0%	10,700	
2.0%	21,400	
6.0%	64,200	
0.1%	3,385	Indoor-only (with 5 dB
1.0%	33,840	building attenuation)
2.0%	67,670	
6.0%	203,000	

C. Apple and WINForum have provided no interference analyses and rely exclusively on ITU/AT&T study of HIPERLAN devices.

- The conclusion of this study is inaccurate because the parameters used for the Globalstar™-like system are inaccurate.

- HIPERLAN and NII/SUPERNet are not equivalent. Type I HIPERLAN is designed as indoor only, and the ITU/AT&T study relies on 1% outdoor parameter. NII/SUPERNet is portable and mobile; there is no proposed restriction on indoor use. There are detailed specifications proposed for operation of HIPERLAN; Apple and WINForum advocate minimal technical standards.

- The ETSI standard has not yet been made final. ICO/Comsat pointed out that the MSS industry is continuing to advocate additional safeguards to avoid signal degradation and power robbing in Europe. Moreover, at the recent meeting of ITU Sub Working Group 4A-3 in Rio de Janeiro, a draft new question was adopted to study frequency sharing between systems in the Fixed Satellite Service and Wireless Digital Networks (Document 4A/TEMP/74-E).

- The fact that MSS feeder links may be required to share spectrum with HIPERLAN devices in Europe does not mean that the proposals in the NPRM would permit sharing with NII/SUPERNet devices in the U.S. (or Europe).

IV. Unlicensed Devices Cannot Be Authorized to Cause or Be Protected From Harmful Interference.

A. The Commission's proposed "safe harbor" rule is inconsistent with Section 301 of the Communications Act and Part 15 by permitting interference into licensed services by an unlicensed device.

- Section 301 of the Act requires that a transmitting device which has a potential for causing interference must be licensed.

- Part 15 requires that unlicensed devices not cause harmful interference and be required to cease operation if they do. 47 C.F.R. § 15.5(b-c).

B. Apple's Part 16 approach is inconsistent with regulation of unlicensed devices.

- Part 16 regulation would impermissibly shift the burden of avoiding harmful interference from the unlicensed device to licensed services.

- In order to obtain protection from harmful interference, coordination between licensed services may at times be necessary; but, because NII/SUPERNet devices are not locatable, it is not feasible to consider such coordination.

V. Recommendations/Potential Solutions

1. LQL recommends that the Commission make 250 MHz of proposed spectrum available for NII/SUPERNet devices, excluding 5150-5250 MHz band.

2. If 5150-5250 MHz band is made available, then technical standards for operation of NII/SUPERNet operations must be adopted to protect MSS feeder links. For example:

   - Power should be reduced to require that the aggregate EIRP density to avoid interference to MSS feederlinks of the entire NII/SUPERNet service, including all users over a 3 million square mile area, must not exceed 0 dBW/MHz over any one MHz in the 5150-5250 MHz band at any instant in time.

   - Operation should be limited to indoor use only. Indoor use would make the devices somewhat analogous to HIPERLAN. Low power spectral density (0.1 Watt per 10 MHz maximum) and building attenuation would help protect MSS feeder links.

     a. Indoor use could potentially be regulated by limiting 5150-5250 MHz band to noncommercial institutions. Such a restriction would fulfill the premise of the Apple and WINForum petitions, and would satisfy the Commission's goal to provide benefits to schools, hospitals and libraries.

b. Indoor use should not include operation of so-called "community networks" in the 5150-5250 MHz bands to avoid increased interference to MSS feeder links from higher power devices. (Typical HIPERLAN node at 20 Mbit/s is 50 meters.)

- NII/SUPERNet antennas should be designed so as to direct less power toward spacecraft.

3. If more information is still necessary, ICO/Comsat recommended postponement of the decision on 5150-5250 MHz band until further studies are completed.